

Excitation of nucleon and subsequent meson production of neutrino reaction is one of the important mechanisms for the GeV neutrino reaction. The knowledge of neutrino-induced meson production reaction is still not enough, even in the $\Delta(1232)$ resonance region. We have recently developed a model for $\nu + N \rightarrow \pi N, \pi\pi N, \eta N, K\Lambda, K\Sigma$ reactions in the resonance region ($W \leq 2$ GeV and $Q^2 \leq 2(\text{GeV}/c)^2$). The resonant and non-resonant mechanisms are constrained by analyzing all available data of pion, photon and electron induced reactions. We will report on our efforts, comparisons of the model with data and also other theoretical approaches in the literature. The model developed here will provide a useful input for constructing a neutrino-nucleus reaction model and a neutrino event generator for analyses of neutrino experiments.

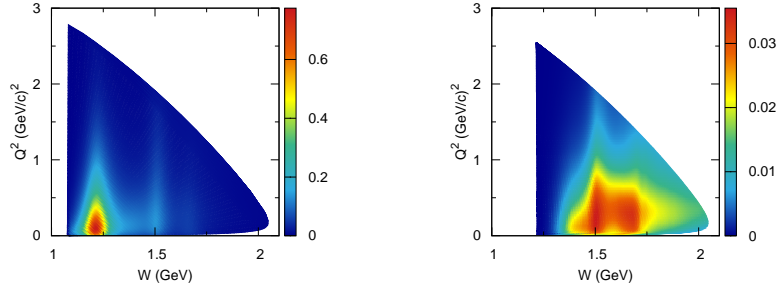


Figure 1: (Color online) Contour plots of $d\sigma/dWdQ^2$ for $\nu_\mu n \rightarrow \mu^- \pi^- N$ (left) and $\nu_\mu n \rightarrow \mu^- \pi^+ \pi^- p$ (right) at $E_\nu = 2$ GeV.